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returning to issue near the mouth. Ferrill regards it as the most primitive form of the Cephalopoda.

A new genus of Cottoid fishes from Puget Sound is described by Mr. E. C. Starks. The type species, *Jordania zonope* is in the Museum of the Leland Stanford, Jr., University. (Proceeds. Phila. Acad. Nat. Sci. [1895] 1896).

Mr. J. A. Allen emphasizes the fact that the change of color in the plumage of birds without moulting is due to the gradual wearing off of the light colored edges of the feathers, combined with the more or less blanching of the color of certain parts. Exposure to the elements and friction also produce more or less marked change in color. The author prefaces his remarks with a brief history of origin and persistence of the theory unwarranted by the facts that the feathers of birds change color with the season independent of the process of moulting. (Bull. Amer. Mus. Nat. Hist., Vol. VIII, 1896.)

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## ENTOMOLOGY.<sup>1</sup>

**The Asymmetry of the Mouth-parts of Thysanoptera.**—In the Bulletin of the Essex Institute, for 1890, Vol. XXII, the writer published a brief account of some peculiarities he had observed in the mouth-parts of members of this order of insects, and ventured in explanation, the hypothesis that in these insects the mandible of the right side of the head is wanting, and that the parts commonly regarded as mandibles are lobes of the maxillæ. Subsequently the writer called this anomalous condition of the mouth-parts to the attention of members of the Entomological Club of the American Association for the Advancement of Science (Indianapolis meeting, August, 1890) and presented slides showing the peculiarities described. (See Canadian Entomologist, 1890, Vol. XXII, p. 215.)

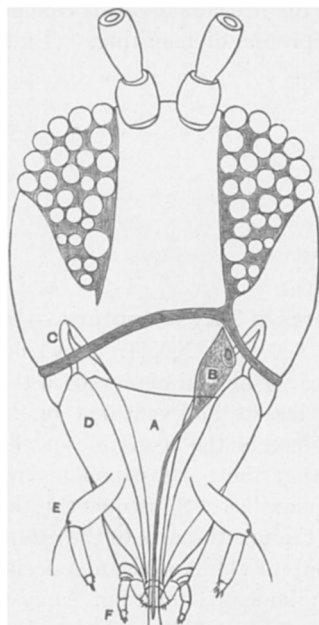
Nothing, so far as I know, has appeared in American literature since that time with reference to the matter, and the old view concerning the structure of the mouth seems to be still current. In Prof. J. H. Comstock's excellent manual, recently issued (1895) the labrum is represented as perfectly symmetrical, the parts considered by him to be mandibles are incompletely represented, and no mention is made of

<sup>1</sup> Edited by Clarence M. Weed, New Hampshire College, Durham, N. H.

any unusual feature of the mouth structure. In giving the characters of the order, he says: "The mouth-parts are probably used chiefly for sucking; they are intermediate in form between those of the sucking and those of the biting insects; the mandibles are bristle-like; the maxillæ are triangular, flat, and furnished with palpi; the labial palpi are also present."

I have just examined a copy of Jindrich Uzel's "*Monographie rádu Thysanoptera*," 1895, perhaps the most extensive work yet published on the Thysanoptera, in which the view of the mouth structure described by me in the Bulletin of the Essex Institute and before the Entomological Club is adopted, though Uzel is disposed to take a different view of the homology of the unpaired mouth-part. His words

are (Ibid, p. 25): "In der Höhlung des Mundkegels bewegen sich die Mondibeln in Form zweier Stechborsten und der unpaare Mundstachel (wohl ein umgebildeter epipharynx) welcher linkerseits liegt und den für die Thysanopteren charakterischen Unsymmetrischen Bau der Mundwerkzeuge bedingt." In order to show more clearly what the unpaired part is like, I have made a drawing from his Figure 161, Tab. IX, which is here reproduced.



Of the interpretation Uzel is disposed to put upon the unpaired part, I have only this to say: It is plainly closely adapted to the left side of the head, and the parts belonging to the region in which it lies are closely adapted to it. It is very evident that it was made to fit in the angle formed by the hard parts of the head on the left side; the labrum

is, on this side, shortened and otherwise suited to accommodate it. A reëxamination of my slides shows the adjustment more complete even than represented in Uzel's figure. Coupled with this is a manifest deficiency in the head on the right side at the place where a corresponding structure should be. It is evident that something is lacking on the right side. If the unpaired organ is an epipharynx that has been displaced, why should the cranial structure of the right side be altered?

The further question arises, why should an epipharynx be pushed to one side and completely shaped to the structures there?

I have suggested that the pair of slender parts, called by Uzel and others mandibles, may be lobes of the maxillæ, and urged in explanation that they are attached to parts regarded by everybody as maxillæ, and besides that they are composed of two divisions (Professor Comstock does not represent the basal piece at all and hence the slender distal part appears in his figures as if free from the maxilla). Uzel figures this pair of mouth organs, as I have done, attached to the bases of the palpus-bearing parts, and as composed of a short basal piece and a long slender distal one. He says nothing of their jointed character but represents an articulation in the right one of his figure 161. They appear to me to be two-jointed and with this true, to consider them mandibles is to assume a departure from the one-jointed condition of the mandible prevailing in Hexapoda.

In the proceedings of the Entomological Club of the American Association (Can. Ent., Vol. XXII, p. 216), I am reported as stating that two unmistakable tarsal claws are present in *Plæothrips* and that the vesicle is probably a modified pulvillus. Prof. Comstock says: "The tarsi are two-jointed, bladder-like at the tip, and without claws." Uzel, on the contrary, states that claws are more or less developed in all *Thysanoptera*. "Beine Kurz; der eine-bis zweigliedrige Tarsus am Ende mit zwei mehr oder weniger deutlichen Klauen, welche an Blase anwachsen."

Prof. Comstock's work has been quoted simply because it represents the established American view of the structure of *Thysanoptera*, a view which must certainly be changed in some particulars. To what extent the asymmetry referred to has been studied by foreign entomologists I am unable to say, since I have not been so situated as to be able to keep close track of the foreign literature. Thus far I have seen no reference to it except that in Uzel's work.

#### EXPLANATION OF THE FIGURE.

Front view of head of *Aeolothrips fasciata*. A, the unsymmetrical labrum; B, the unpaired mouth-part (mandible, according to my interpretation, epipharynx according to Uzel); C, lobe of maxilla (mandible of Uzel and other authors); D, the maxilla; E, the maxillary palpus; F, the labial palpus.—H. GARMAN.

**A New African Diplopod Related to *Polyxenus*.**—While collecting insects in the darker parts of the Liberian forests, I have on

a few occasions noticed what appeared to be large individuals of *Polyxenus* of a dark brownish color, running about on the smooth leaves of the shrubby undergrowth, several feet from the ground. To preserve and carry to America specimens in satisfactory condition is not easy, and hence the present purpose of describing the external features of one found yesterday and having nearly all the bristles still in place.

*SAROXENUS* g. n.

Body minute, tapering caudad.

Head rounded, not as broad as the first segment; between the eyes with an anterior crescentic tiara of long upright serrate bristles: on each side between and above the eyes a short curved line of similar hairs elsewhere the head is smooth.

Eyes of a few (six?) small ocelli clustered on lateral prominences of the head.

Antennæ long and slender, distinctly clavate; sixth joint longest and much the thickest; seventh slightly longer than any of the proximal; eighth joint distinct, minute, several times smaller than the seventh.

First segment with six tufts of bristles, two in front, two behind and one on each side; the dorsal tufts are broader transversely; the lateral are raised on large projections, as in *Polyxenus*, and include more numerous and longer bristles.

The following six segments have each four tufts of similar bristles, two lateral and two posterior, the latter broad, as on the first segment; the bristles are longer and the tufts larger on posterior segments.

Last segment with a nearly complete transverse row of divergent bristles just in front of the dense brush of much finer, closely compacted bristles which compose the terminal fascicle.

*Saroxenus scandens* sp. n.

General color dark grayish brown, the terminal fascicle nearly white; in alcohol and under the microscope, the bristles of the head and segments are seen to be dark brown; the distal joints of the antennæ and legs are pinkish brown, and the exposed portions of the integument have a tinge of the same color; integument generally waxy or dirty white, and transparent so that the contents of the alimentary canal are visible as a dark line; eye spots dark brown.

Segments 8, though the specimen may not be mature; ten pairs of legs.

Length 3.5 mm., or with the terminal fascicle 4 mm.; width 1.2 mm., including the bristles.

Locality, Running about on the leaves of undergrowth, in the forest on Cape Mesurado, Liberia.

Under sufficient magnification the bristles of the head and segments appear as round hollow structures with about four longitudinal rows of very fine appressed teeth directed distad. The bristles of the terminal fascicle are more slender and have for a part of their length large appressed spines in opposite pairs something as shown by Latzel for *Polyxenus lagurus*. Nothing was seen similar to the apices of the hairs as figured by the same author.

This new genus is to be distinguished from *Polyxenus* and *Lophoproctus*<sup>2</sup> by the form of the antennæ and the distribution of the dorsal setæ. In *Polyxenus* the antennæ are short; in *Lophoproctus* they are long, but the apical joint is subequal to the penultimate.

*Polyxenus* has two transverse dorsal rows of rather remote short clavate and strongly serrate setæ, while *Lophoproctus* has a single row. The type of the latter genus is eyeless, although Mr. Pocock proposes to include a species with eyes, *Polyxenus lucidus* Chalande.

From the West Indies Mr. Pocock has described another *Polyxenus*<sup>3</sup> which, to judge from the drawing, has four tufts of setæ on each segment, and also a scattering row along the posterior margin. The antennæ are said to be very long, but appear not to be clavate, and the relative proportions of the joints are not stated. It is probably the type of a new genus having affinities with the African rather than with the European forms.

By the discovery of *Saroxenus* the distribution of the *Pselaphognatha* is considerably extended. Should members of the group be found in other tropical regions there will be added assurance of the antiquity of the subclass, and of the probability of relationship with such fossils as *Palæocampa*.—O. F. Cook.

Monrovia, 1 Feb., 1896.

**North American Crambidæ.**—Dr. C. H. Fernald publishes as a bulletin from the Massachusetts Agricultural College an important Monograph of the Crambidæ of North America. The author has long been recognized as the leading authority on the micro-lepidoptera. The new genera *Eugrotea* and *Pseudoschoenobius* are characterized as well as several new species. The bulletin is admirably illustrated by three plates in black and white and six plates in colors, beautifully printed. This will certainly prove one of the most satisfactory entomological publications ever issued from the Agricultural Colleges.

<sup>2</sup> Pocock, Ann. Mus. Civ. Genova, XXXIV, 506.

<sup>3</sup> *Polyxenus longisetis*, Journ. Linn. Soc., XXIV, 474.

**New Mallophaga.**—Much the most important paper as yet published in America concerning the Mallophaga is the recent contribution from the Hopkins Seaside Laboratory, in which Prof. V. L. Kellogg treats of New Mallophaga, with special reference to a collection made from Maritime birds of the Bay of Monterey, California. In the 140 pages of print the author presents descriptions and figures of one new genus and thirty-eight new species of Mallophaga, together with twenty-two species previously described by European authors, but now, with few exceptions, first determined as parasites of American birds. In addition, the paper contains an excellent general account of the Mallophaga and fourteen admirable plates. It can be obtained for 50 cents by addressing The Registrar, Stanford University, California.

**Entomological Notes.**—Professor D. S. Kellicott publishes<sup>4</sup> the second part of his excellent Catalogue of the Odonata of Ohio. It deals especially with the species of the southern part of the State.

In Bulletin 32 of the Iowa Experiment Station, Messers. Osborn and Mally treat of the chinch bug, four-spotted pea-weevil, the imbricated snout-beetle and other injurious species.

Bulletin 62 of the Virginia Station contains a discussion of the San Jose Scale, by Wm. B. Alwood.

In Bulletin No. 2 of the Technical Series from the U. S. Division of Entomology, Mr. L. O. Howard publishes a careful account of The Grass and Grain Joint-worm Flies and their Allies, being a consideration of some North American Phytophagic Eurytminæ.

In the issue of the Entomologist's Record for May 1st Mr. J. W. Tutt begins an interesting series of articles upon Mimicry.

In Bulletin 69 of the Ohio Station, the Chinch Bug is discussed at length F. M. Webster.

Prof. S. W. Williston publishes a useful Bibliography of North American Dipterology, 1878–1895, in the January Kansas University Quarterly. \* In the same issue W. G. Snow gives a List of Asilidæ supplementary to Osten Sackens Catalogue of North American Diptera, 1878–1895.

<sup>4</sup> Jour. Cin. Soc. Nat. Hist., XVIII, 105–114.